

WHAT IS CLAIMED IS:

1. A lithographic projection apparatus comprising:

a support structure for supporting a patterning device, the patterning device serving to pattern a beam of radiation according to a desired pattern;

a substrate table for holding a substrate;

a projection system for projecting the patterned beam onto a target portion of the substrate;

an illumination system for conditioning said beam of radiation to provide a conditioned radiation beam that illuminates said patterning device, said illumination system defining a plane of entrance wherein said radiation beam enters said illumination system; and

a beam delivery system comprising redirecting elements for redirecting and delivering said beam to said illumination system,

wherein said beam delivery system comprises an imaging system constructed and arranged to image said radiation beam from an object plane located at a distance from said plane of entrance to an image plane located proximate said plane of entrance.

2. A lithographic projection apparatus according to claim 1, wherein said imaging system is a 1X imaging system.

3. A lithographic projection apparatus according to claim 2, wherein said imaging system comprises a pair of lenses, each lens of said pair having a focal distance of $\frac{1}{4}$ times said distance from said object plane to said image plane.

4. A lithographic projection apparatus according to claim 3, wherein each lens of said pair comprises a reflective optical element.

5. A lithographic projection apparatus according to claim 1, wherein said beam delivery system comprises at least one translatable mirror for translating said projection beam in a at least one direction transverse to a beam direction.

6. A lithographic projection apparatus according to claim 5, wherein two translatable mirrors are positioned in subsequent positions of the beam delivery path, wherein a first mirror translates said beam in a first direction and a second beam translates said beam in a second direction, said first and second directions being transverse to each other and to said beam direction.
7. A lithographic projection apparatus according to claim 5, wherein said translatable mirror is placed in said object plane.
8. A lithographic projection apparatus according to claim 1, wherein a tiltable mirror is located in an object plane of said imaging system.
9. A lithographic projection apparatus according to claim 8, wherein said tiltable mirror is rotatable in two different directions.
10. A lithographic projection apparatus according to claim 8, wherein said tiltable mirror is translatable.
11. A device manufacturing method comprising:
 - delivering a projection beam of radiation from a radiation source to an illumination system;
 - conditioning said projection beam using an illumination system, said illumination system defining a plane of entrance wherein said radiation beam enters said illumination system;
 - patterning the conditioned projection beam with a pattern in its cross-section; and
 - projecting the patterned beam of radiation onto a target portion of a layer of radiation-sensitive material on a substrate; and
 - imaging said radiation beam from an object plane located at a distance from said plane of entrance to an image plane located proximate said plane of entrance.

12. A method according to claim 10, wherein the method comprises:
 - locating a tiltable mirror in an object plane of said radiation beam so as to control pointing direction of the beam at the plane of entrance; and
 - reflecting said radiation beam by translatable mirrors, so as to control the beam position at the plane of entrance.